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## **RESTRICTED MATERIALS PERMIT CONDITION #16**

### **1,3-DICHLOROPROPENE with CHLOROPICRIN** **Tarped, Drip Irrigation and Broadcast** **Revised 07/25/2016**

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**Note: Complete Form Packets are separate from these permit conditions**

#### **General Requirements**

1. These conditions apply to pesticides that contain 1, 3-dichloropropene and chloropicrin. Users shall comply with product labeling, permit conditions, condition attachments and pesticide laws and regulations. When requirements differ, the most stringent requirement shall be followed, unless there is specific guidance about exceptions. These permit conditions do not apply to non-field fumigations, including greenhouses, potting soil, and golf courses.
2. It is the responsibility of both the property operator and the pest control business (PCB) to comply with product label instructions, pesticide regulations and permit conditions. Failure to comply may result in an administrative penalty consisting of a fine to one or both parties.
3. All complaints of pesticide exposure or unsafe conditions shall be reported to the Agricultural Commissioner as soon as possible and no later than the next workday. After normal working hours, leave a message at 781-5910.

4. The application block size is limited to 40 acres at one location within a 24-hour period. An application block is a field or portion of a field treated with a fumigant in any 24-hour period.
5. If a non-TIF tarp is used, the applications must start no earlier than one hour after sunrise and must end no later than three hours prior to sunset.
6. No application shall commence or continue when air temperatures reach 85°F at the application site.
7. Entry into the application block (including early entry that would otherwise be permitted by the Worker Protection Standard) by any person, other than a government official mandated to regulate pesticide use or a properly trained and equipped handler who is performing a handling task permitted the product labeling, is prohibited from the start of the application until seven (7) days after the application is complete. This prohibition applies to all applications, including all tarp types.
8. The permit applicant shall provide a completed *Soil Fumigation Plan* and site map. The plan and site map are conditions of the permit. Indicate the following information in your fumigation plan and site map:
  - a. The time (within a 12-hour window) that each application is scheduled to commence.
  - b. The Department of Pesticide Regulation (DPR) approved 60% high barrier tarp to be used (if applicable).
  - c. All TIF tarps purchased after June 1, 2016 must be identified with the manufacturers' printing of the tarp name and lot number. For tarps purchased prior to June 1, 2016, a copy of the tarp invoice or similar document must be provided.
  - d. If the fumigant is applied in strips, bedded or by drip irrigation, the calculations to determine the broadcast equivalent application rate shall be included with the *Soil Fumigation Plan*. See the *Calculating the Broadcast Equivalent Application Rate* form included on product labeling and in these permit conditions. Express the broadcast equivalent in pounds of active ingredient per acre for the chloropicrin part of the product only.
  - e. If required by the product label or by the Agricultural Commissioner, designate which type of Emergency Preparedness will be used: Fumigant Site Monitoring or Response Information for Neighbors.
  - f. The site map must include:
    - The number, acreage and outline of proposed application block(s).
    - The buffer zone size for each block and the location of the buffer zone edges.
    - The application block dimensions.
    - The approximate location of buffer zone signs and treated block(s) warning signs.
    - Roadways, rights-of-ways, easements and sidewalks or other permanent walking paths.
    - The location of the water sources to be used for the chemigation (if applicable).
    - The proposed injection point(s), if known (if applicable).
    - The location of the property operator's backflow prevention set up (if applicable).
    - The location of any wells within 100 feet of the proposed fumigation site/field.
    - The location of all difficult to evacuate sites (as defined in the product label) within ¼ mile of the fumigation site.
    - The location with a description of structures and bystander areas within 300 feet of the outer perimeter of the buffer zone.
    - The location of, and distances to sensitive areas, as determined by the Agricultural Commissioner.

9. The *Soil Fumigation Plan* shall be submitted and approved and the fumigant added to the permit prior to submittal of the Notice of Intent (NOI). Please note it may take several days for the *Soil Fumigation Plan* to be approved; **submitting the plan at least a week prior to the NOI is recommended.**
10. Pesticides containing 1, 3-D and chloropicrin shall be applied only by a Pest Control Business appropriately licensed by the DPR.
11. The fumigating property operator is responsible for the fumigated ground until the Entry Restricted Period (ERP) is over and aeration is complete.
12. **Additional conditions may be required by the Agricultural Commissioner and specified in supplemental permit conditions.**

### **Chemigation System (Drip Irrigation)**

1. The grower or grower's representative, who has the authority to control the activities at the site and is knowledgeable about the irrigation system, shall be present at the treatment site during the application. This representative shall be trained in general pesticide safety and product label in accordance with California Code of Regulations (CCR) Section 6724.
2. Prior to the application, a test of the chemigation system shall be performed by running water through the system to check for pressure variation, clogged emitters and leaks. The pressure must not exceed the pressure rating of the drip tape and the pressure variation in the drip tape throughout the field must be less than 3 pound per square inch (3 psi). The drip system must be free of leaks and clogged emitters.
3. Prior to the application, all row end drip tape connections at the lay flat, and any lay flat fitting connections, must be covered with a tarpaulin consistent with that used for the application.
4. During the application a pressure gauge shall be employed on each block to be fumigated to insure that the burst strength or connection strength does not exceed the drip tape manufacturer's maximum pressure specification.
5. A field monitor, trained in general pesticide safety and on the product label in accordance with CCR Section 6724, must be at the application site at all times during the application in order to identify any leaks or product puddling at the soil surface.
6. Do not allow treatment solution to accumulate on the soil surface. If puddling or run-off occurs, discontinue the application immediately, and cover with soil or with the type of tarp used for the application.
7. When modifying an irrigation block to reduce the application block size within a field, the drip tape and the tarp must be cut to clearly define the edge of the treatment area. To prevent leaks crimp or tie off the drip tape up stream of the cut.
8. After the application, the drip system must be flushed with a volume of water at least three times the volume of the mainline and lateral lines of the system.

## **Tarps**

1. The DPR list of approved TIF tarps are the only tarps that qualify for a 60% reduction in buffer zone distance. The list can be found at <http://www.cdpr.ca.gov/docs/emon/pubs/tac/chlorop.htm>.
2. All TIF tarps purchased after June 1, 2016 must be identified with the manufacturers' printing of the tarp name and lot number. For tarps purchased prior to June 1, 2016, a copy of the tarp invoice or similar document must be provided.
3. Tarps are considered part of the application equipment and must be kept in good repair throughout the application. **Tape used for repairs must be compatible with the tarp used for the application.**
4. An application block is a field or the portion of a field treated in a 24-hour period that typically is identified by visible indicators, maps, or other tangible means. An application block shall only be covered with tarps of the same permeability.
5. Metallized tarps are not allowed to be used.
6. Untarped applications are not allowed.
7. When tarps are used from either the EPA or DPR approved TIF tarp lists, the tarps must not be perforated until a minimum of 9 days (216 hours) have elapsed after the application is complete and must not be removed until a minimum of one day (24 hours) after perforation, unless a weather condition exists which necessitates early tarp perforation or removal as specified by the label. These tarp lists can be found at: for the EPA list: [www2epa.gov/soil-fumigants/tarps](http://www2epa.gov/soil-fumigants/tarps), for the DPR list: [www.cdpr.ca.gov/docs/emon/pubs/tac/chlorop.htm](http://www.cdpr.ca.gov/docs/emon/pubs/tac/chlorop.htm)

## **Notice of Intent (NOI)**

1. NOIs must be submitted by 2:00 pm, 2 days (48 hours) prior to the proposed application. NOIs for applications planned for Sundays or Mondays must be submitted no later than 2:00 pm on the previous Thursday.
2. For multiple blocks fumigated sequentially, submit one NOI with a block schedule or a separate NOI for each block.
3. A valid recommendation from a registered Pest Control Adviser shall be submitted before the NOI is accepted and the application is allowed.
4. In addition to information required in Title 3 CCR 6434(b), the following information must be submitted with the NOI (if not previously submitted with the *Soil Fumigation Plan* for items a through d):
  - a. Fumigation Notice form, if applicable (English/Spanish, when applicable).
  - b. Notification Log with a site map of the adjacent sites numbered to correspond to the Notification Log's numbering system (if applicable).
  - c. Written permission to allow a buffer zone to extend onto adjoining property (if applicable).

- d. Vacating agreement(s) for the resident(s) of any structure within the buffer zone (if applicable).
  - e. Application depth and type.
  - f. The total gallons (TG) of the pesticide formulation.
  - g. The pounds per gallon (lbs./gal) of 1,3-D active ingredient.
  - h. The percent by weight of 1,3-D, expressed as a decimal.
  - i. The total pounds (TP) of 1,3-D active ingredient applied.
  - j. The application factor (AF) of 1,3-D appropriate for the proposed application.
  - k. The adjusted total pounds (ATP) of 1,3-D for the proposed application. (See *Calculating Adjusted Total Pounds (ATP) and Application Factor (AF)* below)
5. The fumigation cannot begin sooner than the time listed on the NOI and must begin within 12 hours of the scheduled time. Any change in the NOI, including but not limited to acreage, scheduling, or buffer zones, must be submitted in writing for approval by the Agricultural Commissioner, although the 48-hour waiting period may be waived.

### **Calculating Adjusted Total Pounds (ATP) and Application Factor (AF)**

The adjusted total pounds (ATP) for each application shall be calculated based on the following:

- a. The total gallons (TG) of the pesticide formulation
- b. The lbs/gal for pesticide formulation
- c. The percent by weight (XX%) of the 1,3-D in the pesticide formulation, expressed as a decimal (.XX)\*
- d. The total pounds (TP) of 1,3-D (TP=TG x lbs/gal x .XX)
- e. The application factor (AF) as determined from below

The ATP for each application shall be calculated using the following formula:

$$\text{TG} \times \text{lbs/gal} \times (.XX) \times \text{AF} = \text{ATP}$$

### **Determining the Application Factor (AF)**

Fumigation method consists of:

- 1) Shallow-shank injection less than 18 inches deep
- 2) Deep-shank injection 18 inches or deeper

### **Determining the Application Factor (AF):**

Tarp Type	Months	Fumigation Method	Application Factor
Non-60% credit	Dec - Jan	Shallow	2.3
		Deep	1.2
		Drip	1.16
	Feb - Nov	Shallow	1.9
		Deep	1.0
		Drip	1.16

60% credit	Dec - Jan	Shallow or Deep	0.6
		Drip	1.16
	Feb - Nov	Shallow or Deep	0.3
		Drip	1.16

### **Emergency Preparedness and Response Measures**

1. If product label *Emergency Preparedness and Response Measures* are triggered, the certified applicator must declare on the *Soil Fumigation Plan* which method of emergency preparedness will be followed; *Fumigant Site Monitoring* or *Response Information for Neighbors*.
2. If site monitoring is chosen as the method of Emergency Preparedness, the field must be monitored eight times during the duration of the buffer zone. Four of those eight times must be within one hour of midnight and one hour of noon.
3. The Emergency Preparedness and Response site monitoring must be conducted as follows:
  - a. Monitoring must be done at the outer perimeter of the buffer zone.
  - b. The wind direction and time noted must be included in the Post Application Summary.
  - c. Monitoring must be done in at least two different locations along the perimeter of the buffer zone, including;
    - Downwind of the application block
    - In the direction of all residences, businesses, and bystander areas that trigger the Emergency Preparedness and Response Measures.
    - On calm days, monitoring must be done along all buffer zone sides.
  - d. The person conducting the monitoring must have full olfactory capabilities (e.g. must not be impaired by allergies or head colds).
  - e. If the monitor experiences sensory irritation, triggering the emergency response plan, or the emergency response plan is implemented for any other reason, the Agricultural Commissioner must be notified. After normal working hours, leave a message at 781-5910.
4. If Neighbor Notification is selected as the method of Emergency Preparedness, the Response Information for Neighbors must be **provided one week prior to the application** and be in both English and Spanish.

### **Application Restrictions near Difficult to Evacuate Sites**

1. Schools are considered occupied when they are in session, scheduled to be in session and/or hosting public events at the school site while the buffer zone is in effect.
2. A school is defined as an institution for the instruction of children from kindergarten through high school. Also included are daycare centers and preschools, as defined in the Health and Safety Code Section 1596.76. "Day care center" means any child day care facility other than a family day care home, and includes infant centers, preschools, extended day care facilities, and school age child care centers.

3. Day care centers and other difficult to evacuate sites are listed at the following website:  
<http://ccld.ca.gov/PG3581.htm> For example; select “child care center” as the facility type and the ZIP code, city, county or area code to find the names and addresses of the child care centers in a specific area.

### **Occupied Structures**

1. Application of a product containing 1,3-D is prohibited within 100 feet of any occupied structure, measured from the perimeter of the application block to the occupied structure. For the purposes of this permit condition, an occupied structure is defined as a place where people dwell or reside.
2. The Agricultural Commissioner may apply this restriction to other structures where people work.
3. This restriction applies to sites that have not been treated with 1,3-D within the previous two years.
4. All occupied structures within 100 feet of the application shall be vacated and *Vacating Agreements* must be signed by the resident/property operator and submitted to the Agricultural Commissioner prior to approval of the NOI. See *Vacating Agreement* form.

### **Buffer Zones**

1. The buffer zone is measured from the perimeter of the application block. Restrictions apply from the start of the application until the expiration of the buffer zone period.
2. The only buffer zone reduction credit allowed is for tarps assigned 60% credit listed on the DPR approved TIF tarp list. DPR’s list of approved TIF tarps can be found at <http://www.cdpr.ca.gov/docs/emon/pubs/tac/chlorop.htm>.
3. Buffer zones are in effect at the start of the application and shall remain in effect for a minimum of 48 hours after the application is complete.
4. Non-handlers, including but not limited to fieldworkers, residents, pedestrians, lunch truck personnel and other bystanders shall be excluded from the buffer zone during the buffer zone period.
5. Buffer zones shall not contain occupied structures. All structures within the buffer zones shall be vacated and *Vacating Agreements* must be signed by the resident/property operator and submitted to the Agricultural Commissioner prior to approval of the NOI. See *Vacating Agreement* form.
6. Buffer zones shall not extend onto adjoining properties, unless written permission has been obtained from the adjoining resident/property operator and submitted to the Agricultural Commissioner prior to approval of the NOI. See *Permission for a Fumigant Buffer Zone to Extend On to Adjoining Property* form.
7. Buffer zones shall not extend onto bystander areas. A bystander area is any area used or visited by people on a daily basis, including parks, playgrounds, lakes, reservoirs, bus stops, and other similar areas where groups of people visit, or other areas identified by the Agricultural Commissioner.

8. The Agricultural Commissioner may deny or add restrictions for buffer zones that extend onto or across transit sites (streets, highways, railroads, etc.).
9. Buffer zone size for drip irrigation, strip or bedded applications shall be determined by using the broadcast equivalent application rate, for the chloropicrin part of the product only, which must be calculated using one of the formulas provided on the *Calculating the Broadcast Equivalent Application Rate* form provided on the product label and in these permit conditions. Please show your calculations on the bottom of the form in pounds of active ingredient of chloropicrin/acre.

Minimum buffer zone distances regardless of credits:

TIF Tarps that qualify for a reduction credit of 60%	Non-TIF Tarps that do not qualify for a reduction credit of 60%	
	Application block less than or equal to 6 acres	Greater than 6 acres, up to 40 acres
25 feet	60 feet	100 feet

10. The buffer zone size shall be determined using Buffer Zone Tables 1-8a, included in these permit conditions and found in DPR's *Chloropicrin and Chloropicrin in Combination with Other Products (Field Fumigant) Interim Recommended Conditions (Appendix K)*, then applying the broadcast equivalent if applicable. The broadcast equivalent is in pounds of active ingredient chloropicrin per acre. Tables 1-4 are for TIF tarp applications and already have the 60% reduction credit applied.
11. Before the start of the application, the certified applicator must determine whether their buffer zone will overlap with any other buffer zone(s) associated with a product containing chloropicrin. Buffer zones must not overlap unless a minimum of 12 hours have elapsed from the time the earlier application is complete until the start of the later application and Fumigant Site Monitoring or Response Information for neighbors have been implemented, if there are any residences or businesses within 300 feet of any of the buffer zones.
12. If buffer zones for two or more applications of any product containing chloropicrin overlap within 36 hours from the time the earlier application is complete, until the start of the later application, certain restrictions apply based on the type of tarp used:
  - Combined acreage of all application blocks, regardless of tarp type, shall not exceed 40 acres.
  - Buffer zone distance for TIF tarped blocks shall be based on individual block application method, application rate and acreage using the appropriate table included in these permit conditions.
  - Buffer zone distance for non-TIF tarps shall be based on the combined acreage of all non-TIF tarped blocks with overlapping buffer zones.
  - When non-TIF tarped blocks overlap, the buffer zone is calculated based on the block with the highest application rate and applied to all blocks.
  - Buffer zone distance for non-TIF tarped blocks shall be based on the application method with the greatest buffer zone using Tables 5 – 8a included in these permit conditions.



## **Posting Requirements**

1. The supervising certified applicator shall ensure that both the treated field and the buffer zone around the treated field shall be posted with warning signs, no sooner than 24 hours prior to the start of the application.
  - a. Buffer zones must be posted whether they exist on the property under the control of the fumigating operator or on adjoining property.
  - b. The buffer zone warning signs shall be placed along the outside perimeter of the buffer zone at all corners, at intervals of every 200 feet and at all points of entry into the buffer zone.
  - c. If multiple contiguous blocks are fumigated within a 14 day period, the entire periphery of the contiguous blocks' buffer zones may be posted. If posting multiple contiguous blocks, the signs must remain posted until the buffer zone of the last fumigated block has expired.
  - d. The Agricultural Commissioner may allow exceptions to posting requirements which shall be specified in supplemental permit conditions.
2. The property operator shall maintain the posting of the warning signs around the treated field after the application, and remove the signs within 3 days of the expiration of the Entry Restricted Period and prior to allowing workers into the treated block.
3. The property operator shall maintain the posting of the buffer zone for 48 hours (duration of the buffer zone), and remove the buffer zone signs within 3 days after the end of the buffer zone period. If posting multiple contiguous blocks (see Posting Requirements 1.c., above), then the signs must remain posted until the last buffer zone period expires. The signs must be removed within 3 days after the buffer zone period of the last block has expired and prior to allowing workers into the buffer zone area.

## CALCULATING THE BROADCAST EQUIVALENT APPLICATION RATE

To calculate the broadcast equivalent rate for bedded or strip applications the following information is needed:

- gallons of product per treated acre
- strip or bed bottom width (inches)
- center-to-center row spacing (inches)
- application block size (acres)

Gallons of product **per treated acre** is the ratio of total amount of product applied to the size of the **total area treated** (e.g., the rate of product applied in the bed). For bedded or strip applications, the **total area treated** is the summation of the area (i.e., length x width) of each treated bed bottom or strip that is located within the application block as shown by the black areas in Figure 1 (e.g., black areas are 0.6A or 60% of the area within the application block). The area of the space between the beds/strips is not factored in the total area treated.

The **application block size** is the acreage within the perimeter of the fumigated portion of a field (including furrows, irrigation ditches, roadways). The perimeter of the application block is the border that connects the outermost edges of total area treated with the fumigant product.

Figure 1. Bedded/Strip Application  
(1 acre application block)

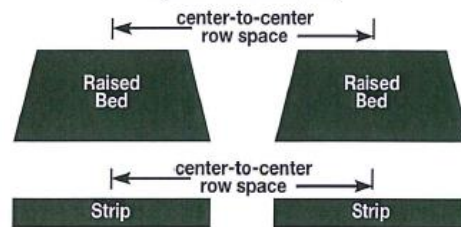


The "broadcast equivalent rate" must be calculated with the following formula:

$$\text{Broadcast equivalent rate (gallons product/acre)} = \frac{\text{strip or bed bottom width (inches)}}{\text{center-to-center row spacing (inches)}} \times \text{gallons product/treated acre applied in the strip or bed}$$

- The bed width must be measured from the bottom of the bed.
- The center-to-center row spacing must be calculated as shown in Figure 2.
- If there are any ditches, waterways, drive rows and other areas that are not fumigated that are in the application block, multiply the above broadcast equivalent equation by (total area of strips or beds + row spacing)/(application block size). A sample calculation is provided.

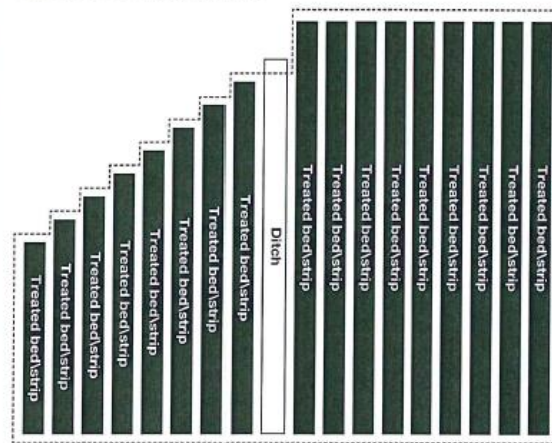
Figure 2. Center Row Spacing



Sample broadcast equivalent rate calculation

Assumptions:

- Application method is shank bedded
- Bed width is 30 inches (measured at the bottom of bed)
- Center-to-center row spacing is 60 inches
- 75 gallons of product per treated acre is applied in the beds
- Total application block size is 10 acres
- Ditch in the middle of application block is 0.25 acres
- Area of beds + row spacing is 9.75 acres



$$\begin{aligned} \text{broadcast equivalent rate (gallons product/acre)} &= \frac{\text{strip or bed bottom width (inches)}}{\text{center-to-center row spacing (inches)}} \times \frac{\text{area of strip or bed + row spacing}}{\text{application block size}} \times \text{Gallons product/treated acre applied in the bed} \\ &= \frac{30 \text{ inch width beds}}{60 \text{ inch row spacing}} \times \frac{9.75 \text{ acres}}{10 \text{ acres}} \times 75 \text{ gals product/treated acre} \\ &= 36.6 \text{ gals product/acre} \end{aligned}$$

## EXPRESS BROADCAST EQUIVALENT IN POUNDS OF A.I. CHLOROPICRIN ONLY

PLEASE SHOW CALCULATIONS BELOW

Table 1. Chloropicrin buffer zone distances (feet) for TIF broadcast shank injection fumigations in Coastal and Inland counties. Round up to the nearest rate and block size, where applicable.

		Application Block Size (acres)																		
		1	2	3	4	5	6	7	8	9	10	15	20	25	30	35	40	50	60	
Broadcast Equivalent Application Rate (lbs AI/acre)	95	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	
	100	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	29	
	105	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	34	
	110	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	31	42	
	115	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	27	38	49
	120	25	25	25	25	25	25	25	25	25	25	25	25	25	25	26	30	34	45	56
	125	25	25	25	25	25	25	25	25	25	25	25	25	25	27	30	36	40	52	64
	130	25	25	25	25	25	25	25	25	25	25	25	25	27	32	36	41	47	59	71
	135	25	25	25	25	25	25	25	25	25	25	25	25	30	36	41	47	54	66	78
	140	25	25	25	25	25	25	25	25	25	25	25	25	34	40	46	53	60	73	86
	145	25	25	25	25	25	25	25	25	25	25	25	26	38	45	52	59	66	79	92
	150	25	25	25	25	25	25	25	25	25	25	25	29	42	50	58	64	72	85	99
	155	25	25	25	25	25	25	25	25	25	25	25	33	45	54	63	70	77	92	106
	160	25	25	25	25	25	25	25	25	25	25	25	36	49	59	69	76	83	98	112
	165	25	25	25	25	25	25	25	25	25	25	27	40	52	64	74	82	88	104	119
	170	25	25	25	25	25	25	25	25	25	26	30	44	56	68	80	87	94	110	126
	175	25	25	25	25	25	25	25	25	25	29	34	47	60	73	86	93	100	116	132
	180	25	25	25	25	25	25	25	25	28	33	38	52	64	78	90	100	108	125	141
	185	25	25	25	25	25	25	26	32	37	42	56	69	82	95	106	116	134	150	
	190	25	25	25	25	25	25	30	36	41	47	60	74	87	100	112	125	142	160	
	195	25	25	25	25	25	27	33	39	45	51	65	78	91	104	119	133	151	168	
	200	25	25	25	25	25	30	37	43	49	56	69	83	96	109	125	142	160	178	
	205	25	25	25	25	27	34	40	47	53	60	74	88	100	114	132	150	168	187	
	210	25	25	25	25	30	37	44	50	57	64	78	92	105	118	138	158	177	196	
	215	25	25	25	27	33	40	46	53	60	66	81	96	110	124	144	164	182	202	
	220	25	25	25	29	36	42	49	56	62	68	84	100	114	130	149	169	188	208	
	225	25	25	25	32	38	45	52	58	64	71	87	103	119	135	155	174	194	213	
	230	25	25	26	34	42	48	54	60	67	73	90	107	124	141	160	180	199	219	
	235	25	25	27	36	44	50	57	63	69	76	93	110	128	146	166	185	205	224	
	240	25	25	28	38	47	53	59	66	72	78	96	114	133	152	172	190	210	230	
	245	25	25	30	40	50	56	62	68	74	80	99	118	138	158	177	196	216	236	
	250	25	25	31	41	52	58	64	70	76	82	102	121	142	163	181	200	220	242	
	255	25	25	32	42	53	59	65	71	77	84	104	124	146	168	185	203	225	248	
	260	25	25	32	43	54	60	67	73	79	85	106	128	150	172	190	206	230	253	
	265	25	25	33	44	56	62	68	74	81	87	109	130	154	178	194	210	234	259	
	270	25	25	34	45	57	64	70	76	82	88	111	134	158	182	198	213	239	264	
	275	25	25	34	46	58	65	71	78	84	90	114	137	162	187	202	216	244	270	
	280	25	25	35	48	60	66	73	79	86	92	116	140	166	192	206	220	248	276	
	285	25	25	36	49	62	68	75	82	89	96	120	144	169	194	210	228	257	286	
	290	25	25	36	50	63	70	78	85	92	99	124	149	172	195	215	235	266	296	
	295	25	25	37	51	64	72	80	87	95	102	128	154	175	196	220	242	274	306	

Table 1 (cont.). Chloropicrin buffer zone distances (feet) for TIF broadcast shank injection fumigations in Coastal and Inland counties. Round up to the nearest rate and block size, where applicable.

		Application Block Size (acres)																	
		1	2	3	4	5	6	7	8	9	10	15	20	25	30	35	40	50	60
lbs AI/acre	300	25	25	38	52	66	74	82	90	98	106	132	158	178	198	224	250	283	316
	305	25	26	40	54	69	77	85	93	101	109	136	163	184	205	229	253	287	321
	310	25	27	42	57	71	80	88	96	104	113	141	169	190	211	234	257	292	327
	315	25	29	44	59	74	82	91	99	108	116	145	174	196	218	239	260	296	332
	320	25	30	45	60	76	84	92	101	109	118	147	176	199	222	243	264	301	337
	325	25	31	46	62	78	86	94	102	110	119	149	178	202	226	247	268	306	342
	330	25	32	48	64	79	87	96	104	112	120	150	181	205	229	251	273	310	348
	335	25	33	49	65	81	89	97	105	114	122	152	183	208	233	255	277	315	352
	340	25	34	50	66	82	91	99	107	115	123	154	186	211	236	259	282	320	358
	345	25	36	52	68	84	92	100	108	116	124	156	188	214	240	263	286	324	363
	350	25	36	53	70	86	94	102	110	118	126	158	190	217	244	267	290	329	368

Table 2. Chloropicrin buffer zone distances (feet) for TIF bed shank injection fumigations in Coastal and Inland counties. Round up to the nearest rate and block size, where applicable.

		Application Block Size (acres)																	
		1	2	3	4	5	6	7	8	9	10	15	20	25	30	35	40	50	60
Broadcast Equivalent Application Rate (lbs AI/acre)	100	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
	105	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	26	40
	110	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	26	54	62
	115	25	25	25	25	25	25	25	25	25	25	25	25	25	25	28	38	58	67
	120	25	25	25	25	25	25	25	25	25	25	25	25	25	25	38	50	62	72
	125	25	25	25	25	25	25	25	25	25	25	25	25	25	31	44	57	75	84
	130	25	25	25	25	25	25	25	25	25	25	25	25	34	38	50	64	88	96
	135	25	25	25	25	25	25	25	25	25	25	25	25	41	45	57	72	92	101
	140	25	25	25	25	25	25	25	25	25	25	25	30	48	52	64	80	96	106
	145	25	25	25	25	25	25	25	25	25	25	25	40	54	64	70	88	110	120
	150	25	25	25	25	25	25	25	25	25	25	28	48	59	71	80	99	119	130
	155	25	25	25	25	25	25	25	25	25	25	38	56	64	78	90	110	128	140
	160	25	25	25	25	25	25	25	25	25	25	43	61	71	85	97	113	132	149
	165	25	25	25	25	25	25	25	25	25	25	48	66	78	92	104	116	136	158
	170	25	25	25	25	25	25	25	25	25	25	51	69	85	98	111	124	144	164
	175	25	25	25	25	25	25	25	25	25	26	54	72	92	104	118	132	152	170
	180	25	25	25	25	25	25	25	25	25	27	56	74	95	107	121	136	156	175
	185	25	25	25	25	25	25	25	25	25	28	57	76	97	110	125	140	161	180
	190	25	25	25	25	25	25	25	25	25	28	59	78	100	113	128	143	165	184
	195	25	25	25	25	25	25	25	25	26	29	60	80	102	116	132	147	169	190
	200	25	25	25	25	25	25	25	25	26	30	62	82	105	119	135	151	174	194
	205	25	25	25	25	25	25	25	25	27	30	63	84	108	122	138	155	178	199
	210	25	25	25	25	25	25	25	25	27	31	65	86	110	125	142	158	182	204
	215	25	25	25	25	25	25	25	25	28	32	66	88	113	128	145	162	187	209
	220	25	25	25	25	25	25	25	25	29	33	68	90	116	131	148	166	191	214
	225	25	25	25	25	25	25	25	25	29	34	70	92	118	134	152	170	196	218
	230	25	25	25	25	25	25	25	26	30	34	71	95	121	137	155	174	200	224
	235	25	25	25	25	25	25	25	26	31	35	72	97	124	140	158	177	204	228
	240	25	25	25	25	25	25	25	27	31	36	74	99	126	143	162	181	208	233
	245	25	25	25	25	25	25	25	28	32	36	76	101	129	146	165	185	213	238
	250	25	25	25	25	25	25	25	28	32	37	77	103	132	148	168	188	217	243
	255	25	25	25	25	25	25	25	28	33	38	79	105	134	152	172	192	222	248
	260	25	25	25	25	25	25	25	29	34	39	80	107	137	154	175	196	226	252
	265	25	25	25	25	25	25	25	30	34	39	82	109	139	158	179	200	230	258

Table 3. Chloropicrin buffer zone distances (feet) for TIF strip *deep* ( $\geq 18$  inches) injection fumigations in Coastal and Inland counties. TIF strip *shallow* injection fumigations are prohibited. Round up to the nearest rate and block size, where applicable.

		Application Block Size (acres)																	
		1	2	3	4	5	6	7	8	9	10	15	20	25	30	35	40	50	60
Broadcast Equivalent Application Rate (lbs AI/acre)	75	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
	80	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	27	35
	85	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	36	48
	90	25	25	25	25	25	25	25	25	25	25	25	25	25	25	26	32	46	60
	95	25	25	25	25	25	25	25	25	25	25	25	25	26	32	38	43	57	70
	100	25	25	25	25	25	25	25	25	25	25	25	26	35	44	49	54	68	81
	105	25	25	25	25	25	25	25	25	25	25	25	32	44	56	61	66	79	92
	110	25	25	25	25	25	25	25	25	25	25	26	40	52	63	68	74	87	101
	115	25	25	25	25	25	25	25	25	25	25	32	48	59	70	75	81	96	110
	120	25	25	25	25	25	25	25	25	25	25	37	56	66	76	82	88	104	120
	125	25	25	25	25	25	25	25	25	25	25	42	62	73	84	90	96	112	129
	130	25	25	25	25	25	25	25	25	25	28	47	65	78	91	97	103	121	138
	135	25	25	25	25	25	25	25	25	30	34	52	68	84	98	104	110	130	148
	140	25	25	25	25	25	25	25	28	34	40	56	72	89	106	112	118	138	158
	145	25	25	25	25	25	25	27	33	40	46	62	78	95	113	120	128	148	170
	150	25	25	25	25	25	26	32	38	45	52	68	84	102	120	128	138	159	181
	155	25	25	25	25	25	30	37	44	50	57	73	89	108	126	137	147	170	192
	160	25	25	25	25	27	34	41	47	54	61	78	94	113	132	144	156	179	202
	165	25	25	25	25	30	36	43	49	56	62	80	98	117	136	150	163	188	212
	170	25	25	25	26	32	38	45	51	58	64	83	102	121	140	155	170	196	221
	175	25	25	25	28	34	40	47	53	60	66	86	106	125	144	161	178	204	230
	180	25	25	25	29	35	42	48	55	61	68	88	109	129	148	166	183	210	236
	185	25	25	25	30	36	43	50	56	63	70	91	112	132	152	170	188	216	243
	190	25	25	25	30	37	44	51	58	65	72	93	115	136	156	175	193	222	250
	195	25	25	25	31	38	45	52	59	66	74	96	118	140	160	180	198	227	256
	200	25	25	25	32	39	46	54	61	68	76	98	121	143	164	184	204	233	263
	205	25	25	26	33	40	47	55	62	70	77	101	124	147	169	189	208	239	270
	210	25	25	26	34	41	48	56	64	72	79	103	127	150	173	194	214	245	276
	215	25	25	27	34	42	50	58	65	73	81	106	130	154	177	198	219	251	282
	220	25	25	28	35	43	51	59	67	75	83	108	133	157	181	203	224	256	289
	225	25	25	28	36	44	52	60	68	77	85	110	136	161	185	207	229	262	296
	230	25	25	29	37	45	53	62	70	78	87	113	139	164	189	212	234	268	302
	235	25	25	30	38	46	54	63	72	80	89	116	142	168	193	216	239	274	309
	240	25	25	30	38	47	56	64	73	82	90	118	145	172	198	221	244	280	316
	245	25	25	31	39	48	56	66	74	84	92	120	148	175	202	226	249	286	322
	250	25	25	32	40	48	58	67	76	85	94	123	152	179	206	230	254	292	328
	255	25	25	32	41	50	59	68	78	87	96	125	154	182	210	235	259	297	335
	260	25	25	33	42	50	60	70	79	88	98	128	158	186	214	240	264	303	342
	265	25	25	33	42	52	61	71	80	90	100	130	160	190	218	244	270	309	348

Table 4. Chloropicrin buffer zone distances (feet) for TIF drip fumigations in Coastal and Inland counties. Round up to the nearest rate and block size, where applicable.

		Application Block Size (acres)																	
		1	2	3	4	5	6	7	8	9	10	15	20	25	30	35	40	50	60
Broadcast Equivalent Application Rate (lbs AI/acre)	112	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
	118	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	31	37
	123	25	25	25	25	25	25	25	25	25	25	25	25	25	26	27	27	41	48
	128	25	25	25	25	25	25	25	25	25	25	25	25	27	30	32	34	56	56
	133	25	25	25	25	25	25	25	25	25	25	25	26	29	33	37	41	59	64
	139	25	25	25	25	25	25	25	25	25	25	25	28	32	35	42	49	61	72
	144	25	25	25	25	25	25	25	25	25	25	25	30	34	38	47	56	64	80
	149	25	25	25	25	25	25	25	25	25	25	28	37	42	49	58	67	77	92
	155	25	25	25	25	25	25	25	25	25	25	34	45	50	59	69	77	89	104
	160	25	25	25	25	25	25	25	25	26	30	44	52	58	70	80	88	102	116
	165	25	25	25	25	25	25	25	25	27	31	46	54	60	72	83	91	106	120
	171	25	25	25	25	25	25	25	25	28	32	47	56	62	75	85	94	109	124
	176	25	25	25	25	25	25	25	25	29	33	48	57	64	77	88	97	112	128
	181	25	25	25	25	25	25	25	26	30	34	50	59	66	79	91	100	116	132
	187	25	25	25	25	25	25	25	27	31	35	51	61	68	82	93	103	119	135
	192	25	25	25	25	25	25	25	27	32	36	53	62	70	84	96	106	122	139
	197	25	25	25	25	25	25	25	28	32	37	54	64	72	86	99	108	126	143
	203	25	25	25	25	25	25	25	29	34	38	56	66	74	89	101	112	129	147
	208	25	25	25	25	25	25	25	30	34	39	57	68	76	91	104	114	133	151
	213	25	25	25	25	25	25	26	30	35	40	59	69	77	93	107	117	136	155
	219	25	25	25	25	25	25	26	31	36	41	60	71	79	96	109	120	140	158
	224	25	25	25	25	25	25	27	32	37	42	62	73	81	98	112	123	143	162
	229	25	25	25	25	25	25	28	33	38	43	63	74	83	100	115	126	146	166
	235	25	25	25	25	25	25	28	34	39	44	64	76	85	103	117	129	150	170
	240	25	25	25	25	25	25	29	34	40	45	66	78	87	105	120	132	153	174

Table 5. Chloropicrin buffer zone distances (feet) for non-TIF broadcast shank injection fumigations in Coastal and Inland counties. Round up to the nearest rate and block size, where applicable.

		Application Block Size (acres)															
		1	2	3	4	5	6	7	8	9	10	15	20	25	30	35	40
Broadcast Equivalent Application Rate (lbs AI/acre)	125	60	60	60	60	60	60	100	100	100	100	100	100	100	100	100	101
	130	60	60	60	60	60	60	100	100	100	100	100	100	100	100	103	117
	135	60	60	60	60	60	60	100	100	100	100	100	100	100	102	118	134
	140	60	60	60	60	60	60	100	100	100	100	100	100	100	115	133	150
	145	60	60	60	60	60	60	100	100	100	100	100	100	112	129	147	164
	150	60	60	60	60	60	60	100	100	100	100	100	104	124	144	161	179
	155	60	60	60	60	60	60	100	100	100	100	100	113	135	158	175	193
	160	60	60	60	60	60	60	100	100	100	100	100	122	147	172	190	207
	165	60	60	60	60	60	60	100	100	100	100	100	131	159	186	204	221
	170	60	60	60	60	60	60	100	100	100	100	109	141	171	201	218	236
	175	60	60	60	60	60	60	100	100	100	100	118	150	183	215	233	250
	180	60	60	60	60	60	60	100	100	100	100	129	161	194	226	249	271
	185	60	60	60	60	60	60	100	100	100	106	140	173	205	238	265	291
	190	60	60	60	60	60	61	100	100	103	117	151	184	217	249	281	312
	195	60	60	60	60	60	68	100	100	113	128	162	196	228	261	297	333
	200	60	60	60	60	61	76	100	107	123	139	173	207	240	272	313	354
	205	60	60	60	60	68	84	100	117	133	149	184	219	251	284	329	374
	210	60	60	60	63	75	92	109	126	143	160	195	230	263	295	345	395
	215	60	60	60	68	82	99	116	132	149	166	203	239	274	309	359	409
	220	60	60	60	73	89	106	122	139	155	171	210	249	286	324	373	422
	225	60	60	61	79	96	113	129	145	161	177	218	258	298	338	387	436
	230	60	60	64	84	104	119	135	151	167	183	225	267	310	352	401	449
	235	60	60	68	89	111	126	142	157	173	189	233	276	321	366	415	463
	240	60	60	71	95	118	133	148	164	179	194	240	286	333	381	429	476
	245	60	60	75	100	125	140	155	170	185	200	248	295	345	395	443	490
	250	60	60	77	103	129	144	159	174	189	204	254	303	355	407	453	499
	255	60	60	79	105	132	147	163	178	193	209	260	311	365	419	463	507
	260	60	60	80	108	136	151	167	182	197	213	266	319	375	431	474	516
	265	60	60	82	111	139	155	170	186	202	217	272	326	385	444	484	524
	270	60	60	84	113	143	159	174	190	206	221	278	334	395	456	494	533
	275	60	60	86	116	146	162	178	194	210	226	284	342	405	468	505	541
	280	60	60	88	119	150	166	182	198	214	230	290	350	415	480	515	550
	285	60	60	89	122	154	171	188	205	222	239	300	361	423	484	526	569
	290	60	60	91	124	158	176	194	212	230	248	310	373	430	488	538	588
	295	60	60	93	127	161	180	199	218	237	256	320	384	438	491	549	606
	300	60	60	95	130	165	185	205	225	245	265	330	395	445	495	560	625
	305	60	64	100	136	172	192	212	233	253	273	341	408	460	512	573	633
	310	60	68	105	142	178	199	220	240	261	282	352	422	475	528	585	642
	315	60	73	110	148	185	206	227	248	269	290	363	435	490	545	598	650
	320	60	75	113	151	189	210	231	252	273	294	367	441	498	554	608	661
	325	60	78	116	155	194	214	235	256	276	297	372	446	505	564	618	671



Table 5 (cont.). Chloropicrin buffer zone distances (feet) for non-TIF broadcast shank injection fumigations in Coastal and Inland counties. Round up to the nearest rate and block size, where applicable.

		Application Block Size (acres)															
		1	2	3	4	5	6	7	8	9	10	15	20	25	30	35	40
lbs AI/acre	330	60	81	120	159	198	218	239	260	280	301	376	452	513	573	628	682
	335	60	83	123	163	202	223	243	263	284	304	381	458	520	582	638	693
	340	60	86	126	166	206	227	247	267	288	308	386	464	528	591	648	704
	345	60	89	129	170	211	231	251	271	291	311	390	469	535	601	658	714
	350	60	91	133	174	215	235	255	275	295	315	395	475	543	610	668	725

Table 6a. Chloropicrin buffer zone distances (feet) for non-TIF bed shank injection fumigations in Coastal counties. Maximum application rate allowed by labels is 265 lbs AI/ac. Round up to the nearest rate and block size, where applicable.

		Application Block Size (acres)															
		1	2	3	4	5	6	7	8	9	10	15	20	25	30	35	40
Broadcast Equivalent Application Rate (lbs AI/acre)	50	60	60	60	60	60	60	100	100	100	100	100	100	100	100	100	100
	60	60	60	60	60	60	60	100	100	100	100	100	100	100	100	100	100
	70	60	60	60	60	60	60	100	100	100	100	100	100	105	120	140	155
	80	60	60	60	60	60	60	100	100	100	100	100	130	160	190	215	235
	90	60	60	60	60	60	60	100	100	100	100	135	190	230	265	295	325
	100	60	60	60	60	60	60	100	100	100	100	170	245	300	345	385	420
	110	60	60	60	60	60	60	100	100	100	110	205	295	375	435	480	515
	120	60	60	60	60	65	85	105	125	145	165	265	360	440	510	570	620
	130	60	60	60	60	85	105	130	155	180	205	330	435	525	600	665	715
	140	60	60	75	105	140	165	195	220	245	270	385	485	580	670	755	835
	150	60	60	95	135	170	200	235	265	295	320	445	560	665	760	850	940
	160	60	70	120	165	205	240	275	305	340	370	510	630	745	850	945	1040
	170	60	85	140	190	235	275	310	350	385	415	570	705	825	935	1040	1145
	180	60	95	160	215	260	305	350	390	430	465	630	775	905	1025	1140	1245
	190	60	105	175	235	290	340	385	430	475	515	690	845	985	1115	1235	1345
	200	60	120	195	260	320	375	425	470	515	560	750	915	1065	1200	1330	1450
	210	60	130	210	285	345	405	460	510	560	605	810	985	1145	1290	1425	1550
	220	60	160	245	320	385	445	500	555	605	650	865	1050	1220	1370	1515	1650
	230	60	170	265	340	410	475	535	590	640	695	920	1120	1295	1460	1610	1755
	240	60	180	280	360	435	500	565	625	680	735	975	1185	1370	1545	1705	1855
	250	60	190	295	380	460	530	595	660	715	775	1030	1250	1445	1630	1800	1960
	260	60	205	310	400	480	555	625	690	755	815	1080	1315	1520	1715	1890	2060
	265	170	275	360	440	515	585	650	715	775	835	1105	1350	1575	1785	1990	2180

Table 7a. Chloropicrin buffer zone distances (feet) for non-TIF strip injection fumigations in Coastal counties. Maximum application rate allowed by labels is 265 lbs AI/ac. Round up to the nearest rate and block size, where applicable.

		Application Block Size (acres)															
		1	2	3	4	5	6	7	8	9	10	15	20	25	30	35	40
Broadcast Equivalent Application Rate (lbs AI/acre)	50	60	60	60	60	60	60	100	100	100	100	100	100	100	100	100	100
	60	60	60	60	60	60	60	100	100	100	100	100	100	100	100	100	100
	70	60	60	60	60	60	60	100	100	100	100	100	100	105	120	140	155
	80	60	60	60	60	60	60	100	100	100	100	100	130	160	190	215	235
	90	60	60	60	60	60	60	100	100	100	100	135	190	230	265	295	325
	100	60	60	60	60	60	60	100	100	100	100	170	245	300	345	385	420
	110	60	60	60	60	60	60	100	100	100	110	205	295	375	435	480	515
	120	60	60	60	60	65	85	105	125	145	165	265	360	440	510	570	620
	130	60	60	60	60	85	105	130	155	180	205	330	435	525	600	665	715
	140	60	60	75	105	140	165	195	220	245	270	385	485	580	670	755	835
	150	60	60	95	135	170	200	235	265	295	320	445	560	665	760	850	940
	160	60	70	120	165	205	240	275	305	340	370	510	630	745	850	945	1040
	170	60	85	140	190	235	275	310	350	385	415	570	705	825	935	1040	1145
	180	60	95	160	215	260	305	350	390	430	465	630	775	905	1025	1140	1245
	190	60	105	175	235	290	340	385	430	475	515	690	845	985	1115	1235	1345
	200	60	120	195	260	320	375	425	470	515	560	750	915	1065	1200	1330	1450
	210	60	130	210	285	345	405	460	510	560	605	810	985	1145	1290	1425	1550
	220	60	160	245	320	385	445	500	555	605	650	865	1050	1220	1370	1515	1650
	230	60	170	265	340	410	475	535	590	640	695	920	1120	1295	1460	1610	1755
	240	60	180	280	360	435	500	565	625	680	735	975	1185	1370	1545	1705	1855
	250	60	190	295	380	460	530	595	660	715	775	1030	1250	1445	1630	1800	1960
	260	60	205	310	400	480	555	625	690	755	815	1080	1315	1520	1715	1890	2060
	265	170	275	360	440	515	585	650	715	775	835	1105	1350	1575	1785	1990	2180

Table 8a. Chloropicrin buffer zone distances (feet) for non-TIF drip fumigations in Coastal counties. Maximum application rate allowed by labels is 225 lbs AI/ac. Round up to the nearest rate and block size, where applicable.

		Application Block Size (acres)															
		1	2	3	4	5	6	7	8	9	10	15	20	25	30	35	40
Broadcast Equivalent Application Rate (lbs AI/acre)	120	60	60	60	60	60	60	100	100	100	100	100	100	100	100	100	100
	130	60	60	60	60	60	60	100	100	100	100	100	100	100	115	130	145
	140	60	60	60	60	60	60	100	100	100	100	100	110	130	150	170	185
	150	60	60	60	60	60	60	100	100	100	100	110	130	160	190	210	230
	160	60	60	60	60	60	60	100	100	100	100	125	160	195	220	250	275
	170	60	60	60	60	60	65	100	100	100	105	150	190	225	260	290	320
	180	60	60	60	60	70	80	100	100	115	125	170	215	255	295	335	370
	190	60	60	60	65	80	95	110	120	130	145	200	245	290	335	375	415
	200	60	60	60	75	95	110	125	140	150	165	225	280	325	375	415	460
	210	60	60	65	90	105	125	140	155	170	185	250	310	365	410	460	505
	220	60	60	75	100	120	140	155	175	190	205	280	340	400	450	500	550
	225	60	60	85	110	130	155	175	195	210	230	305	375	435	490	545	595